VX670

Installation Guide

VeriFone Part Number 24003, Revision A

V^x670 Installation Guide

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WARNING

Do not dispose of the V^x670 Li-ion smart battery in a fire. Li-ion batteries must be recycled or disposed of properly. Do not dispose of Li-ion batteries in municipal waste sites.

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VeriFone Part Number 24003, Revision A

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PREFACE

This guide is your primary source of information for setting up and installing the V^{x}670 terminal.

Audience

This guide is useful for anyone installing and configuring a V^{x}670 terminal. Basic descriptions of the terminal features are also provided.

Organization

This guide is organized as follows:

Chapter 1, Terminal Overview. Provides an overview of the V^{x}670 terminal.

Chapter 2, Terminal Setup. Explains how to set up and install the V^{x}670 terminal. It tells you how to select a location, establish power and telephone line connections, and how to configure optional peripheral devices.

Chapter 3, Specifications. Discusses power requirements and dimensions of the V^{x}670 terminal.

Chapter 4, Maintenance. Explains how to maintain your V^{x}670 terminal.

Chapter 5, VeriFone Service and Support. Provides information on contacting your local VeriFone representative or service provider, and information on how to order accessories or documentation from VeriFone.

Chapter 6, Troubleshooting Guidelines. Provides troubleshooting guidelines, should you encounter a problem in terminal installation and configuration.

Related Documentation

To learn more about the V^{x}670 terminal, refer to the following set of documents:

V^{x}670 Certifications and Regulations Sheet	VPN 24000
V^{x}670 Quick Installation Guide	VPN 24001
V^{x}670 Reference Manual	VPN 24004
V^{x}670 Base and Dongle Quick Installation Guide	VPN 24005
V^{x}670 Standard Base Quick Installation Guide	VPN 24006
Verix V Operating System Programmer's Manual	VPN 23230
Verix V Tools Programmer's Manual	VPN 23231

Conventions and Acronyms

This section describes the conventions and acronyms used in this guide.

Document Conventions

Various conventions are used to help you quickly identify special formatting. Table 1 describes these conventions and provides examples of their use.

Table 1 Document Conventions

Convention	Meaning	Example
Blue	Text in blue indicates terms that are cross referenced.	See Conventions and Acronyms.
Italics	Italic typeface indicates book titles or emphasis.	You *must* install a roll of thermal-sensitive paper in the printer.
`Courier`	The courier type face is used while specifying onscreen text, such as text that you would enter at a command prompt, or to provide an URL.	`http://www.verifone.com`
NOTE	The pencil icon is used to highlight important information.	RS-232-type devices do not work with the PINpad port.
CAUTION	The caution symbol indicates possible hardware or software failure, or loss of data.	The terminal is not waterproof or dustproof, and is intended for indoor use only.
WARNING	The lightning symbol is used as a warning when bodily injury might occur.	Due to risk of shock do not use the terminal near water.

Acronym Definitions

Various acronyms are used in place of the full definition. Table 2 presents acronyms and their definitions.

Table 2 Acronym Definitions

Acronym	Definitions
AC	Alternating Current
ATM	Automated Teller Machine
CDMA	Code Division Multiple Access
CR	Check Reader
EMV	Europay MasterCard and VISA
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communication
ITP	Internal Thermal Printer

Table 2 Acronym Definitions (continued)

Acronym	Definitions
LCD	Liquid Crystal Display
LED	Light Emitting Diode
MRA	Merchandise Return Authorization
MSAM	Micromodule-Size Security Access Module
PED	PIN-Entry Devices
PIN	Personal Identification Number
RJ45	Registered Jack 45
RS-232	Recommended Standard 232
SAM	Security Access Module
SIM	Subscriber Identity Module
UART	Universal Asynchronous Transmitter/Receiver
USB	Universal Serial Bus
VPN	VeriFone Part Number
Wi-Fi	Wireless Fidelity

Terminal Overview

This chapter provides a brief description of the V^{x}670 terminal. The V^{x}670 terminal represents a revolution for e-payment. The V^{x}670 device uses a bold ergonomic design that is sleek and stylish, offering countertop power and 32-bit performance in an integrated terminal that can be handed to the consumer for input, making it ideal for pay-at-table usage.

The V^{x}670 terminal is a portable, battery-powered device that uses wireless technologies, including Wi-Fi with 802.11g technology and GSM/GPRS. It also features a 128-by-128 pixel display and a speedy thermal printer.

NOTE VeriFone ships variants of the V^{x}670 terminal for different markets. Your terminal may have a different configuration. The following devices may or may not be present: a smart card reader, zero or three MSAM cardholders, and/or a SIM cardholder.

Figure 1 The V^{x}670 terminal.

Features at a glance

- **32-bit ARM9 processor** delivers **power** and **usability** in a **convenient** "hand-over" design.
- **Multi-application** operating environment.
- **32-bit processing** and **multi-tasking** capabilities.
- **USB support** for VeriFone peripheral devices.
- **Backward compatibility** with VeriFone solutions **reduces development costs**.
- **Drop resistant** design minimizes breakage.
- Securely supports and runs **payment** and **value-added applications**.
- Offers **unsurpassed performance** on **EMV** smart card transactions.
- **Security** architecture meets specifications for PCI-PED and sophisticated **file authentication**.
- **Max UI design** provides **large display** on small footprint.
- Designed to meet the needs of **TablePAY, DeliveryPAY, and CarsidePAY markets**.
- **Spill resistant design** forces liquid down and off the front of the terminal.

Features and Benefits

V^{x}670 terminals provide the right combination of features and functions. This includes a triple-track magnetic-stripe card reader, smart card reader, integrated PINpad, and a quiet yet fast internal thermal printer (ITP).

Exceptional Ease of Use

- Lightweight (less than 1 pound), tapered design is compact and stylish and the ergonomic balance allows for convenient terminal hand-off to the consumer for PIN entry or other input.
- 128-by-128 pixel display with anti-glare, adjustable contrast, dimming capability, intuitive ATM-style interface, and oversized menu prompts simplify training and reduce calls to the helpdesk.
- Large, well-placed, blue backlit keys provide improved tactile response to simplify usage and minimize finger slips.
- Integrated high-speed thermal printer prints quickly and silently, and simplified paper loading virtually eliminates paper jams.
- Triple-track, high-coercivity card reader handles most magnetic stripe cards.
- Optional Base Station with battery charger supports connectivity to a UART module or a 14,400 bps modem via USB dongles.
- Accepts all types of payments – including debit.

Performance and Durability

- 32-bit processing and multi-tasking capabilities make short work of payment, payment-related, and value-added applications.
- Exceptional graphics-handling capabilities of display and printer quickly render logos, graphical fonts, and character-based languages.
- VeriCentre Appliance Management Suite employs advanced file compression to streamline simultaneous downloads of application software to hundreds of terminals.
- Rounded corners and drop-resistant design minimizes breakage.

- Sealed MSR blade locks out moisture for excellent spill resistance.
- Innovative design resists spills by forcing liquid down and off the front of the terminal
- Integrated PINpad offers added convenience to handle PIN-based applications.
- Uncompromising reliability from VeriFone, the worldwide leader in e-payment.
- Complies with RoHS (Restriction of Hazardous Substances) directive of the European Union.

True Multi-Application Capability

- 6 MB of memory and the Verix V OS dynamic memory allocation support two or three typical-sized applications on a single terminal.
- Primary smart card reader and MSAMs safeguard sensitive financial data and support multiple smart card schemes.
- V^{x}670 series of terminals and SoftPay EMV software have received EMV Level 1 and Level 2 Type approval for smart card solutions. Verix EMV Library provides efficient development of other EMV-compliant applications.
- VeriShield security architecture meets published specifications for PCI-PED and provides sophisticated file authentication to prevent execution of unauthorized software on V^{x}670 terminals.

Expandable Communication Capabilities

- USB Host Port
- USB Device Port for application debugging
- RS-232, Serial Port
- 14,400 bps Modem
- Universal Asynchronous Receiver/Transmitter (UART) port

Wireless Connectivity

- Customers are not tied to a fixed location with the V^{x}670 wireless terminals – the point of payment can be almost anywhere.
- “Always-on” wireless connection uses the latest wireless technologies, including GSM/GPRS and Wi-Fi with 802.11g technology for faster transmission and enhanced compatibility with access points and routers.

Security

- WPA-PSK (pre-shared keys) protects Wi-Fi transactions.
- Other security features include tamper-resistant construction, adoption of SSL protocols, and VeriShield file authentication.

CHAPTER 2

Terminal Setup

This chapter describes the terminal setup procedure. You will learn about:

- Selecting Terminal Location.
- Unpacking the Shipping Carton.
- Examining Terminal Features.
- Examining Connection Ports.
- Establishing Telephone Line Connections.
- Installing the Paper Roll.
- Installing/Replacing MSAM Cards.
- Installing/Replacing SIM Card (GSM/GPRS Models Only).
- Using the Smart Battery.
- Battery Behavior (No Power Cord).
- Installing the Smart Battery.
- Charging the Smart Battery.
- Connecting the Terminal Power Pack.
- Using the Base Station.
- Placing the Terminal Onto the Base Station.
- Attaching the USB Dongles to the Base Station.
- Charging the Spare Battery on the Base Station.
- Conducting Wireless Transactions.
- Conducting Smart Card Transactions.
- Using the Magnetic Card Reader.

Selecting Terminal Location

Use the following guidelines when selecting a location for your V^{X}670 terminal.

Environmental Factors

- The V^{X}670 is a portable terminal. Select a flat support surface, such as a countertop or table, to keep the terminal safe in between uses.
- Do not use the terminal where there is high heat, dust, humidity, moisture, or caustic chemicals or oils.

- Keep the terminal away from direct sunlight and anything that radiates heat, such as a stove or motor.
- Do not use the terminal outdoors.

CAUTION

The terminal is not waterproof or dustproof, and is intended for indoor use only. Any damage to the unit from exposure to rain or dust may void any warranty.

Electrical Considerations

- Avoid using this product during electrical storms.
- Avoid locations near electrical appliances or other devices that cause excessive voltage fluctuations or emit electrical noise (for example, air conditioners, electric motors, neon signs, high-frequency or magnetic security devices, or computer equipment).
- Do not use the terminal near water or in moist conditions.

Unpacking the Shipping Carton

Open the shipping carton and carefully inspect its contents for possible tampering or shipping damage. The V^{x}670 is a secure product and any tampering may cause the terminal to cease to function properly.

To unpack the Shipping Carton

1. Remove and inspect the following items:
   - Terminal
   - Power pack
   - Telephone line cord
   - Power cord
   - Battery pack
   - Paper roll
2. Remove all plastic wrapping from the terminal and other components.
3. Remove the clear protective film from the LCD screen.

CAUTION

Do not use a terminal that has been damaged or tampered with. The V^{x}670 terminal comes equipped with tamper-evident labels. If a label or component appears damaged, please notify the shipping company and your VeriFone representative or service provider immediately.

4. Save the shipping carton and packing material for future repacking or moving the terminal.

Examining Terminal Features

Before you continue the installation process, notice the features of the V^x670 terminal (see Figure 2).

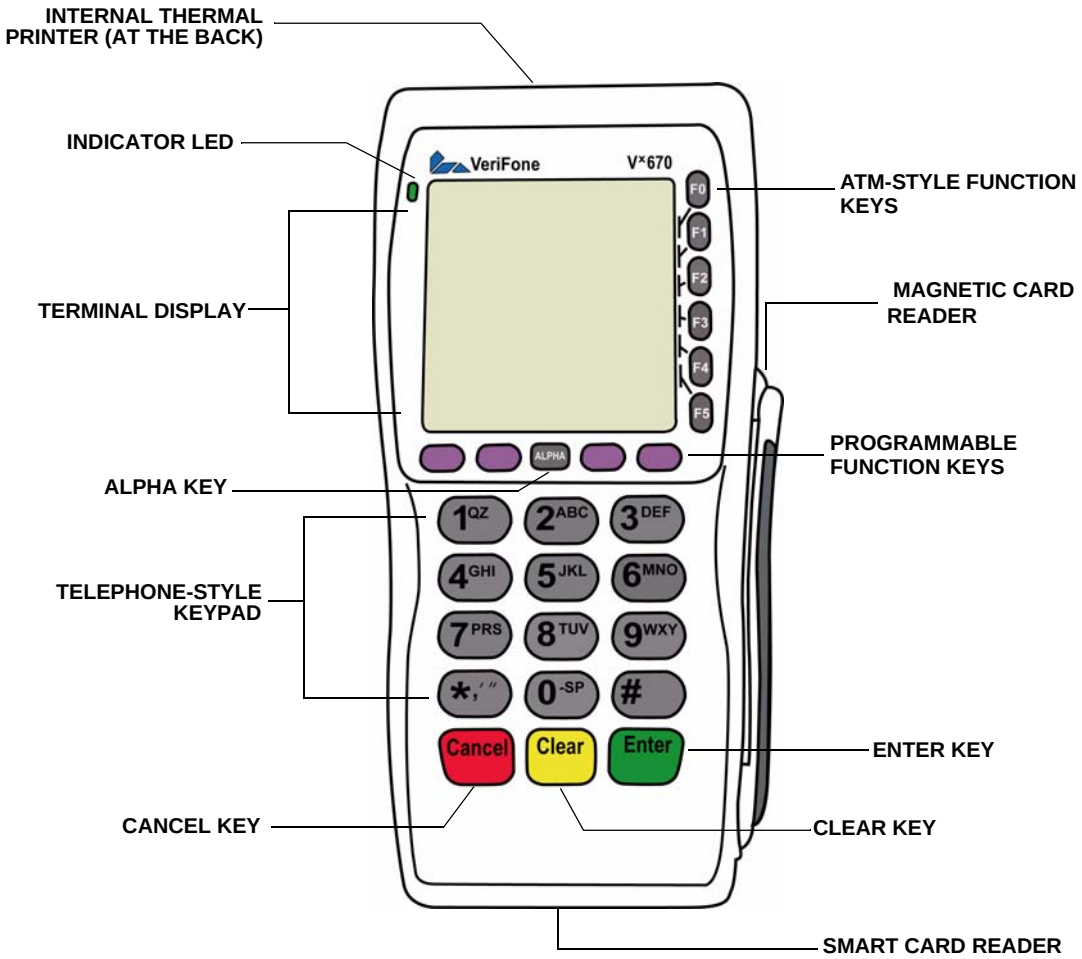

Figure 2 V^x670 Terminal Features (Front Panel)

Front Panel

The front panel includes the following features:

- A **terminal display**, backlit LCD screen.
- Five types of keys:
  - **a** A 12-key, **telephone-style keypad** (keypads may vary in style).
  - **b** Six **ATM-style function keys**, labeled F0 to F5, to the right of the LCD screen.
  - **c** Four **programmable function keys** above the keypad.
  - **d** Three **color-coded function keys** below the keypad (icons at right; from left to right: CANCEL, CLEAR, ENTER).

  - **e** An **ALPHA key** centered at the top of the keypad.

- A **magnetic card reader**, built into the right side. Swipe the card using the proper direction, with the magnetic stripe down and facing inward, toward the keypad.
- A green **indicator LED** indicates power is ON.
- An **internal thermal printer** at the back of the terminal.
- A **smart card reader**, built into the front of the terminal. For directions on how to use a smart card, see Conducting Smart Card Transactions.
- A **SAM (security access module) compartment**, built into the bottom of the terminal. The V^x670 terminal contains MSAM cardholders to support multiple stored-value card programs or other merchant card requirements.

NOTE

VeriFone ships variants of the V^x670 terminal for different markets. Your terminal may have a different configuration. The following devices may or may not be present: a smart card reader, or zero or three MSAM cardholders. However, the basic processes described in this guide remain the same, regardless of terminal configuration.

Examining Connection Ports

The Vx670 terminal has one primary port that supports different peripherals through the use of various cables.

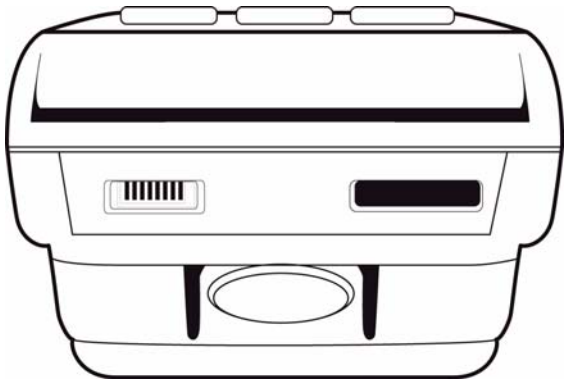

Figure 3 The V^x670 Primary Port (Bottom View)

Power Adapter Cable

Each V^x670 terminal comes with a power adapter cord that completes the connection between the power pack and the terminal.

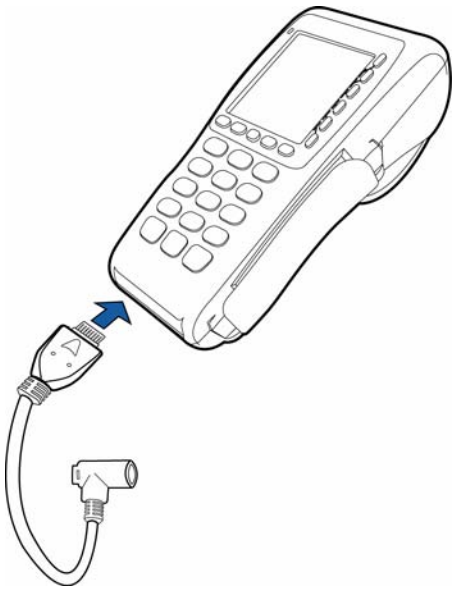

Figure 4 Power Adapter Cable Connection to a V^x670 Terminal

USB Host Cable

A 2-Wire USB Host port for external peripherals. A connector adaptor provides for standard USB host connection for the Modem Dongle or the RS232 UART Dongle.

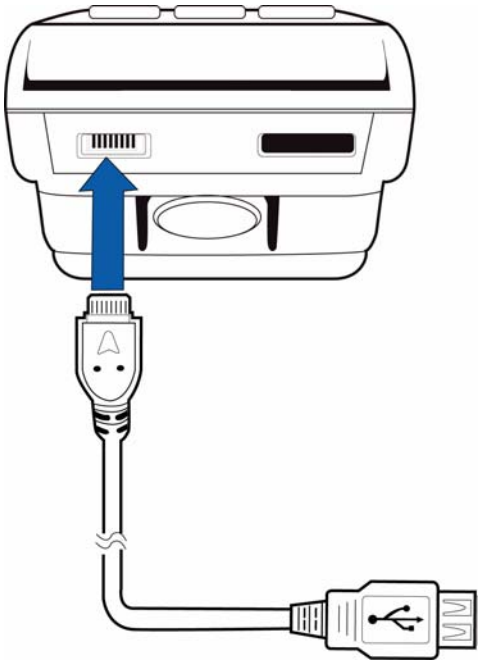

Figure 5 USB Host Cable Connection to a V^x670 Terminal

Multiport Adapter

An adapter that provides connectivity for power, USB Host, USB Device, and COM1 (RS232 UART). This cable is used primarily for deployment or development purposes.

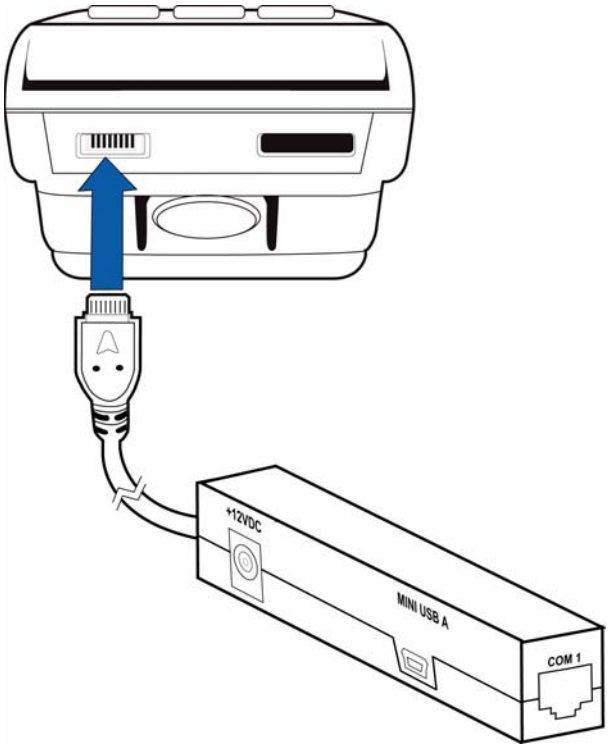

Figure 6 Multiport Adapter Connection to a V^{X}670 Terminal

NOTE

Other cables are available for development purposes. Check with your local VeriFone representative for further information.

USB Modem Dongle

A modem in the form of a USB Modem Dongle may be provided with the V^{X}670 terminal. The USB Modem Dongle provides communication via a telephone line at speeds of up to 14,400 bps. It can also be connected to the full-feature Base Station when the terminal is in the station (see Attaching the USB Dongles to the Base Station).

USB Serial Dongle (RS232 UART)

The USB Serial Dongle may be provided with the V^{X}670 terminal. It is designed to accommodate the RJ45 connector. The USB Serial Dongle can also be connected to the full-feature Base Station when the terminal is placed in the station (see Attaching the USB Dongles to the Base Station).

NOTE

A Base Station may be provided with the V^{X}670 terminal. A full-feature Base Station has two USB host ports for external dongles as well as a battery charger slot for charging an extra lithium-ion battery pack. A standard Base Station does not have any USB ports and is capable of charging the terminal only and not the extra battery pack.

CAUTION The Modem Dongle and Serial Dongle are intended for use with the V^x670 terminal and Base Station only. They should not be installed or used with any equipment other than the V^x670 terminal or Base Station.

Establishing Telephone Line Connections

To connect a telephone line:

1. Connect one end of the telephone cord to the USB Modem Dongle.
2. Connect the USB Modem Dongle to the terminal using the AVX Connector (VPN 24223-01-R).
3. Route the other end of the telephone cord directly to a telephone wall jack.

WARNING To reduce the risk of fire, use only No. 26 AWG or larger UL Listed or CSA Certified Telecommunication Line Cord.

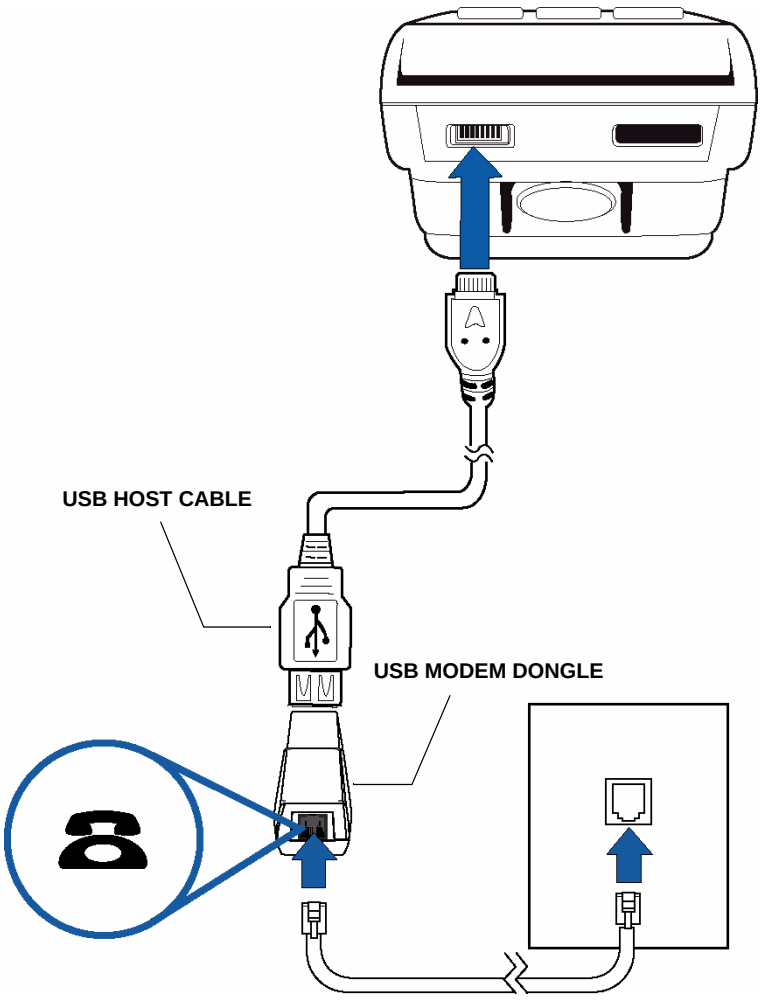

Figure 7 V^x670 USB Modem Dongle Connection

Installing the Paper Roll

A fast, quiet thermal printer is built into the VX670 terminal. Before you can process transactions that require a receipt or record, you *must* install a roll of thermal-sensitive paper in the printer.

The ITP uses a roll of single-ply, thermal-sensitive paper 57 millimeters (2.24 inches) wide and 38 millimeters in diameter. A pink *out-of-paper* indicator line appears on the edge of the paper approximately 18 inches before the end of the roll. After this line appears, there is enough paper remaining on the roll to conclude at least one transaction.

CAUTION

Poor-quality paper can jam the printer and create excessive paper dust. To order high-quality VeriFone paper, refer to Accessories and Documentation.

Store thermal paper in a dry, dark area. Handle thermal paper carefully: impact, friction, temperature, humidity, and oils affect the color and storage characteristics of the paper.

Never load a roll of paper with folds, wrinkles, tears, or holes at the edges in the print area.

To Install a Paper Roll

1 Gently pull the latch located on the bottom of the terminal to unlock the paper roll cover.

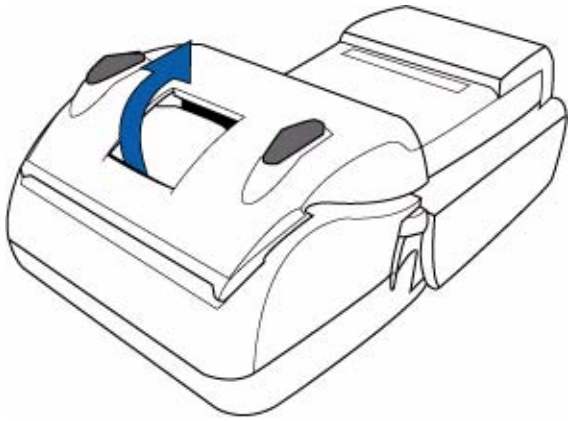

Figure 8 Unlocking the Printer Cover

2 Lift the printer cover up and back.

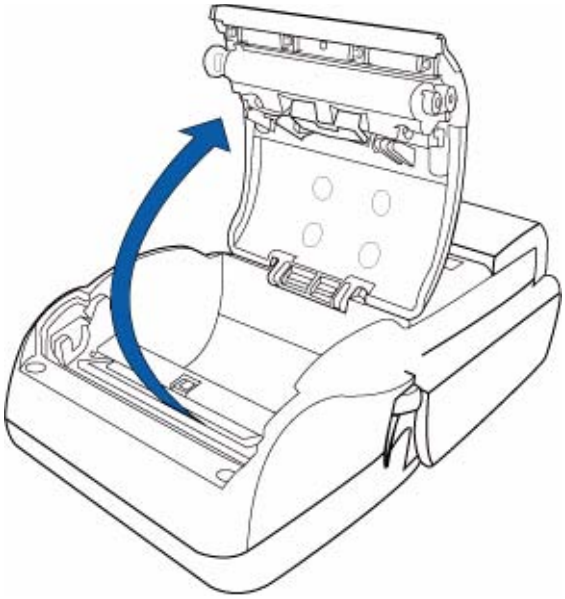

Figure 9 Opening the Printer Cover

3 Remove any partial roll of paper in the printer tray by lifting it up (see Figure 10).

4 Loosen the glued leading edge of the paper or remove the protective strip from the new roll of paper. Unwind the paper roll past any glue residue.

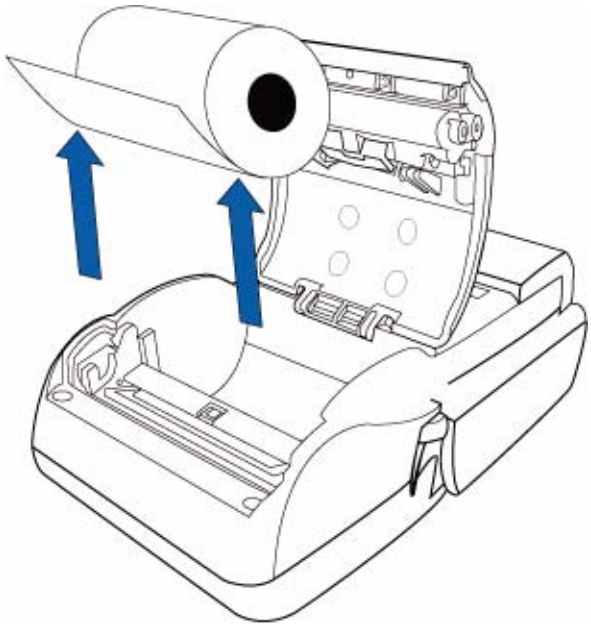

Figure 10 Removing Partial Paper Roll

5 Hold the roll so the paper feeds from the *bottom* of the roll when the terminal is inverted (see Figure 12).

6 Drop the paper roll into the printer tray.

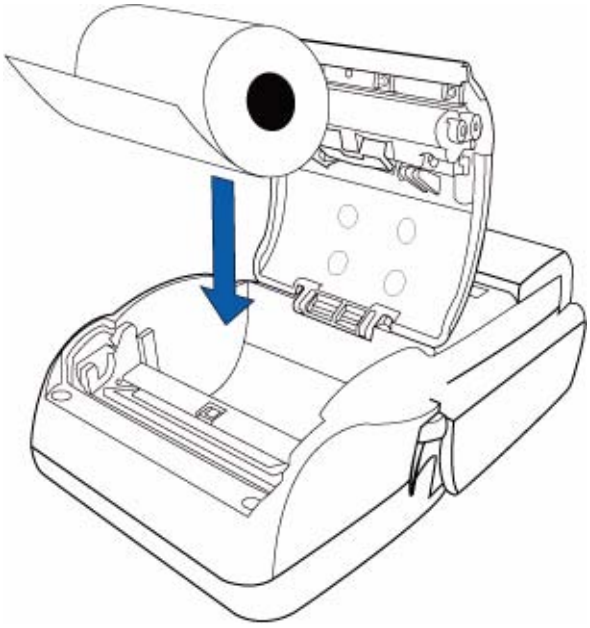

Figure 11 Loading Paper Roll

7 Pull paper up past the glue residue on the paper roll.

8 Close the paper roll cover by gently pressing directly on the cover until it clicks shut, allowing a small amount of paper past the glue residue to extend outside the printer door.

CAUTION To prevent damaging the print roller, always gently press down on the paper roll cover to close it.

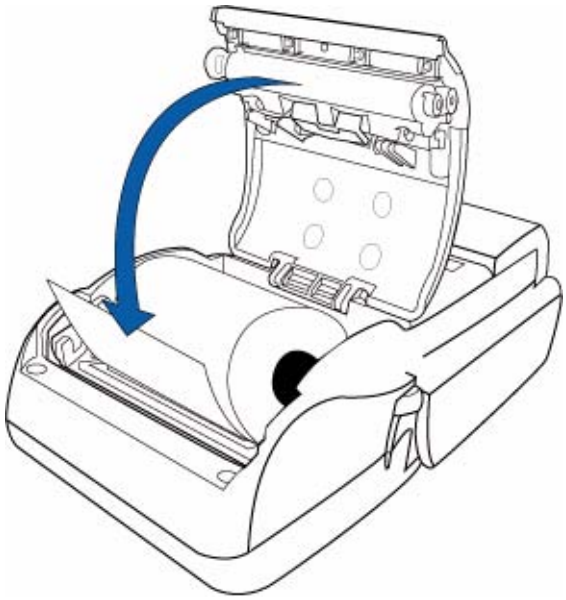

Figure 12 Closing Paper Roll Cover

9 Tear the paper off against the serrated plastic strip in the printer.

Installing/ Replacing MSAM Cards

When you first receive your V^{x}670 terminal, you may need to install one or more MSAM cards or you may need to replace old cards.

CAUTION

Observe standard precautions when handling electrostatically sensitive devices. Electrostatic discharges can damage this equipment. VeriFone recommends using a grounded anti-static wrist strap.

To Install/Replace MSAMs

1 Power off the terminal.

CAUTION

It is very important that the terminal is powered off before removing the battery.

2 Place the terminal upside down on a soft, clean surface to protect the lens from scratches.

3 Remove the battery.

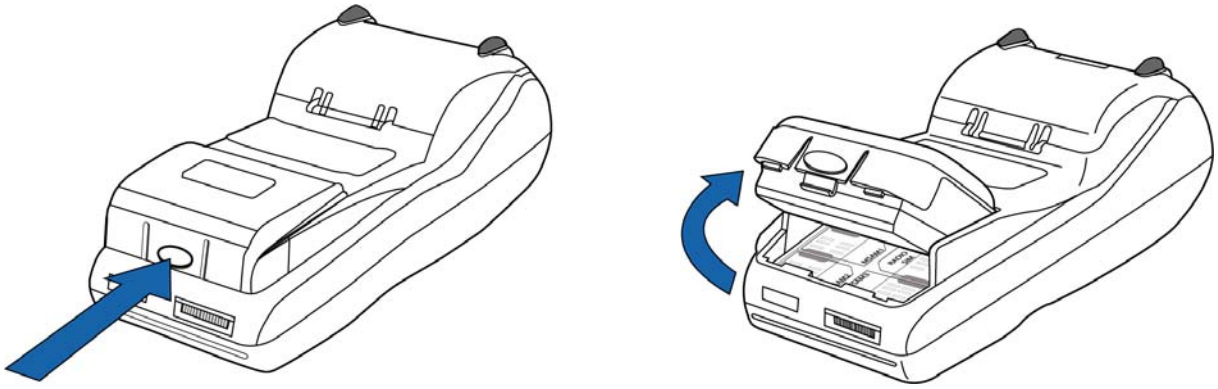

Figure 13 Removing the Smart Battery

4 After removing the battery, the MSAM compartments are exposed.

5 Remove any previously installed MSAM card by sliding the card from the MSAM cardholder.

6 Install an MSAM card by aligning the card and carefully sliding it within the guides on the cover until it is fully inserted (see Figure 14). The MSAM card holders are labeled MSAM1, MSAM2, and MSAM3.

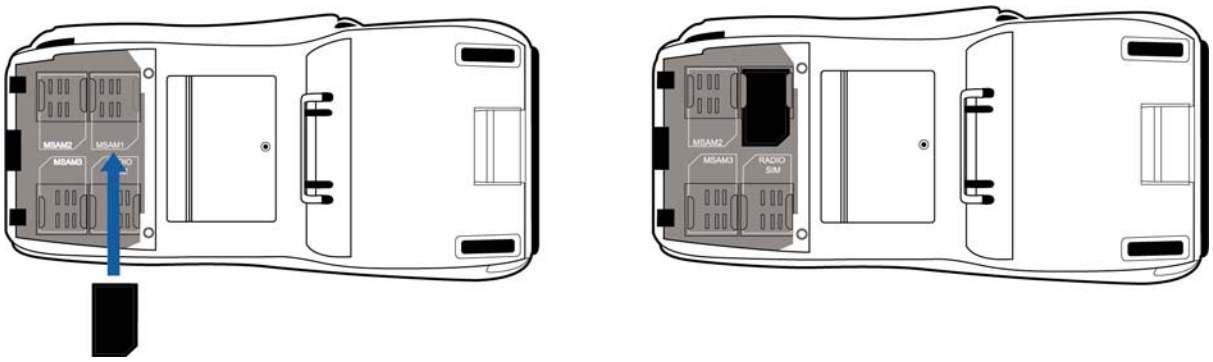

Figure 14 Installing MSAM Card

NOTE

Before inserting the MSAM card, position it as shown in Figure 14, with the card's gold contacts facing the smart card reader end of the terminal. The cardholder connector base has a set of contacts and a notch on one corner to ensure the MSAM card is positioned correctly. The MSAM card has a notch on one corner to ensure that it fits into the connector base in only one way. The MSAM compartment door will not close properly if the MSAM cards are installed incorrectly.

7 Install the battery (see Figure 17).

Installing/ Replacing SIM Card (GSM/GPRS Models Only)

The V^{x}670 terminal supports the installation of a SIM (Subscriber Identity Module) card. Use the following procedure to replace or install a SIM card.

1 Place the terminal upside down on a soft, clean surface to protect the lens from scratches.

2 Remove the battery.

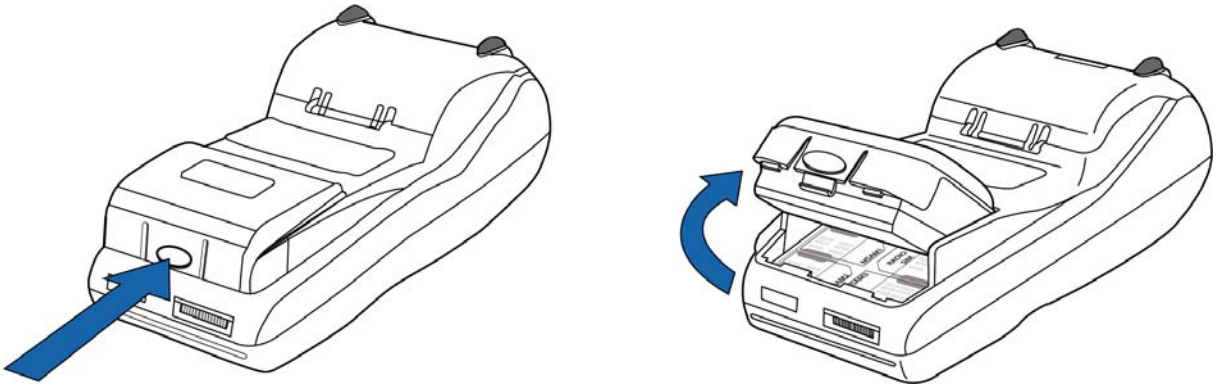

Figure 15 Removing the Smart Battery

3 After removing the battery, the SIM compartment is exposed. The SIM card holder is labeled RADIO SIM.

4 Insert the SIM into the cardholder.

NOTE

There is only one SIM slot, but there are multiple SAM slots. Make sure you insert the SIM card into the SIM slot, as shown in Figure 16.

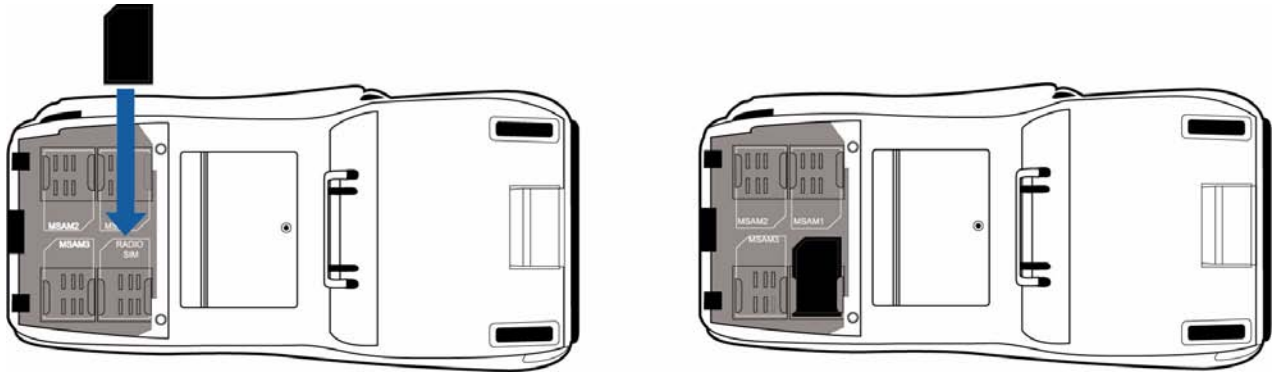

Figure 16 Inserting SIM Card

5 Install the battery (see Figure 17).

Using the Smart Battery

The V^{x}670 terminal uses an Li-ion *smart* battery (see Accessories and Documentation for ordering information). The internal logic of the smart battery prevents both overcharging and undercharging (a fault condition in which the battery level goes well below the minimum acceptable charge and the battery becomes unusable).

NOTE

The V^{x}670 terminal will operate on battery power or on power pack power. The smart battery charger in the terminal will be active whenever the power pack is connected.

Smart Battery Features

The following are features of the smart battery:

- Two Li-ion cells
- A fuel gauge module that:
  - monitors state of charge (voltage and percentage of capacity),
  - communicates with the terminal (charge parameters and status),
  - determines full charge capacity (on charge cycle and uninterrupted discharge cycle), and
  - automatically shuts down when cell voltage is extremely low.
- A safety circuit that:
  - prevents cell damage from overcharge, over-discharge, or overheating, and

- activates when the battery is left in an unused terminal for extended periods.

NOTE

- Lithium-ion batteries are not affected by shallow charging. Furthermore, when the terminal has no external power source or battery the coin cell battery provides power to the security circuit.
- Uninstalling the battery and unplugging the terminal power pack reduce the life of the coin cell battery, which does not recharge and must be replaced if drained.
- Conserve battery power by turning the V^{X}670 terminal off when not in use. If the terminal is not to be used for an extended period of time, keep the Lithium-ion battery inserted in the terminal, and power up the terminal periodically to check the battery charge. Do not let the battery charge fall below 10% for extended periods of time as this may permanently diminish the battery capacity. Recharge the battery by attaching the power cord to the terminal and plugging the power pack into a wall outlet.

Battery Behavior (No Power Cord)

If you connect the V^{X}670 to a non-battery power source, the terminal shifts to corded power mode and starts up automatically, regardless of the battery charge state.

Manual Startup

Hold the green key down for about 4 seconds until the terminal displays the startup screen.

NOTE

The 4-second power-up delay is for preventing terminal startup if the green key is accidentally held down. The time required to hold the green key down to power up the terminal is configurable (for more information, see the V^{X}670 Reference Manual – VPN 24004).

When the terminal has power, the terminal lights are activated and the green LED indicator remains lit.

NOTE

If an application is loaded in the terminal, it starts after the initial VeriFone copyright screen and usually displays a unique copyright screen. If no application is loaded in the terminal, **DOWNLOAD NEEDED** appears on screen after the initial VeriFone copyright screen.

Manual Shutdown

Hold the red key down for about 4 seconds until the terminal displays the shutdown verification screen. Keep holding the red key until the V^x^670 terminal shuts down.

NOTE

- The 4-second shutdown delay is for preventing terminal shutdown if the red key is accidentally held down. The time required to hold the red key down to shut down the terminal is configurable (for more information, see the V^x^670 Reference Manual – VPN 24004).
- When the terminal has no power, the screen is blank and the green LED indicator is not lit.

Installing the Smart Battery

The V^x^670 smart battery fits in a slot on the back of the V^x^670 terminal, as shown in Figure 17. The locking tab clicks when the battery is in place. The slot is *keyed*, so that there is only one way to insert the battery.

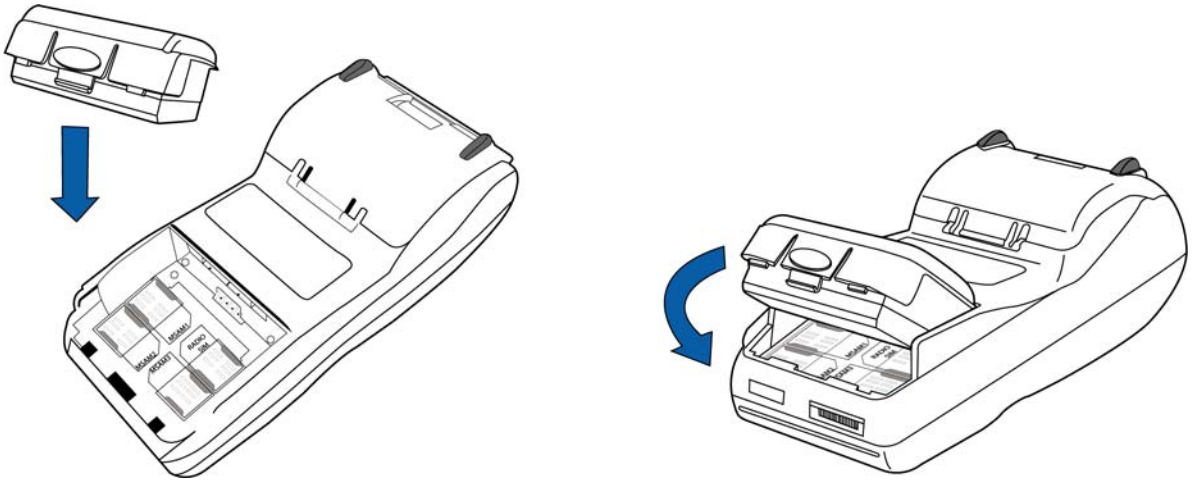

Figure 17 Installing the Smart Battery

Removal

To remove the V^x^670 smart battery, press the locking tab and pull the smart battery from its slot.

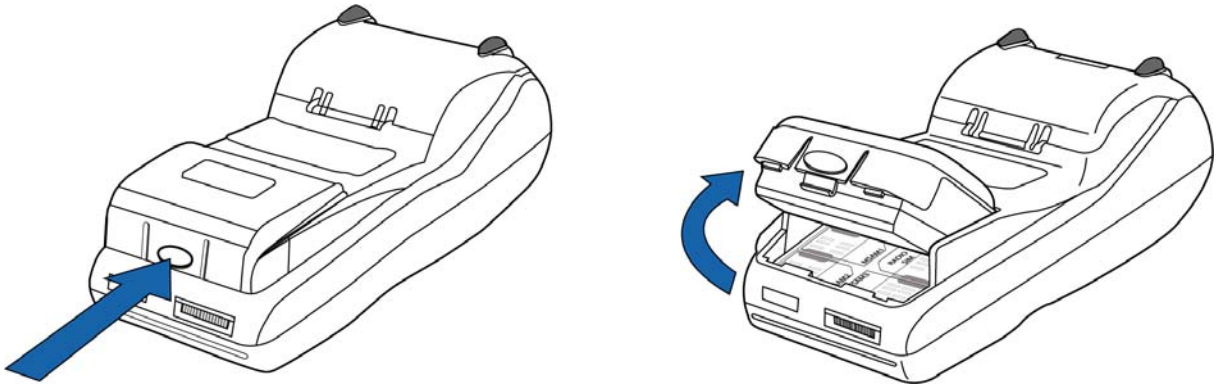

Figure 18 Detaching the Smart Battery from the V^x^670 Terminal

Connecting the Terminal Power Pack

When you have finished installing the smart battery, you are ready to connect the VX670 terminal to the provided power source for initial charging.

CAUTION

Using an incorrectly rated power supply may damage the terminal or cause it not to work as specified. Before troubleshooting, ensure that the power supply being used to power the terminal matches the requirements specified on the bottom of the terminal. (See Chapter 3, Specifications, for detailed power supply specifications.) Obtain the appropriately rated power supply before continuing with troubleshooting.

The VX670 unit comes with a universal input power pack capable of operating from voltages of 100VAC to 240VAC.

To Connect the Terminal Power Pack

1. Insert the round barrel connector into the power port in the connector, as shown in Figure 19.

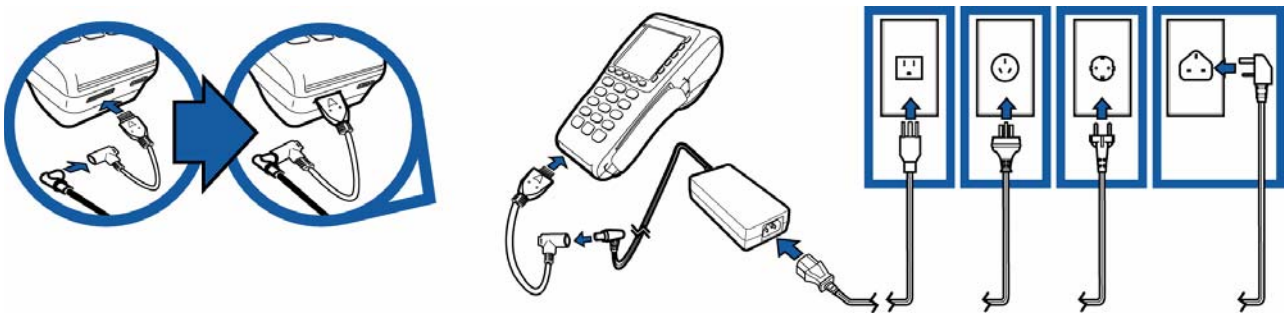

Figure 19 VX670 Power Pack Connection

2. Insert the AC power cord into the power pack.
3. Plug the AC power cord into a wall outlet or powered surge protector.

WARNING

Do not plug the power pack into an outdoor outlet or operate the terminal outdoors.

During a transaction, disconnecting the power by removing the battery or unplugging the terminal from a wall power while at very low battery charge may cause transaction data files not yet stored in the terminal memory to be lost.

NOTE

To protect against possible damage caused by lightning strikes and electrical surges, consider installing a power surge protector.

When the terminal has power, the terminal lights are activated and the LED indicator remains lit.

If an application is loaded in the terminal, it starts after the initial VeriFone copyright screen and usually displays a unique copyright screen. If no application is loaded in the terminal, **DOWNLOAD NEEDED** appears on screen after the initial VeriFone copyright screen.

Charging the Smart Battery

After unpacking your V^{X}670 terminal, install the battery and connect the power pack to the unit for 6 hours or until fully charged.

NOTE The V^{X}670 terminal's smart battery is also charged when the terminal is in the Base Station. For more information, see Placing the Terminal Onto the Base Station.

The smart battery has a safety circuit to protect the Li-ion cells from overcharging and over-discharging. If the battery is over-discharged, the safety circuit shuts down the battery. The battery must then be recharged to restore operation.

NOTE The V^{X}670 terminal automatically shuts off when the smart battery reaches the *critically low* charge state. If this occurs, the smart battery must be recharged for a minimum of 1/2 hour before it can power the terminal. *It may take several recharge attempts to reset the safety circuit* when charging a smart battery that has been discharged below this critical state.

Battery Life

The V^{X}670 smart battery can be charged and discharged hundreds of times, but will eventually wear out. When operating times are noticeably shorter than usual, it is time to buy a new battery (see Accessories and Documentation for ordering information).

WARNING Do not dispose of batteries in a fire. Li-ion batteries must be recycled or disposed of properly. Do not dispose of Li-ion batteries in municipal waste sites.

Using the Base Station

The primary purpose of the Base Station is to charge the terminal battery and provide a docking station for the terminal after being used in pay-at-table environments. The Base Station can be positioned on a countertop or mounted to the wall.

There are two types of Base Stations, the standard model and the full-feature model.

Standard Base Station

The standard Base Station can charge the V^{X}670 terminal. However, it does not have any external ports and has a single LCD to indicate power status.

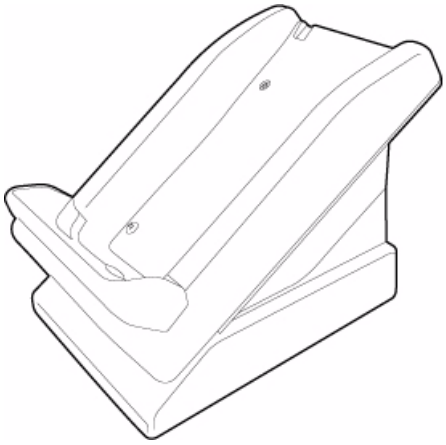

Figure 20 The V^{X}670 Standard Base Station

Full-Feature Base Station

The full-feature Base Station can charge the V^{X}670 terminal while charging an extra battery pack. In addition, it has two USB ports for external dongles, together with one LED for power indication and another LED for the charger status.

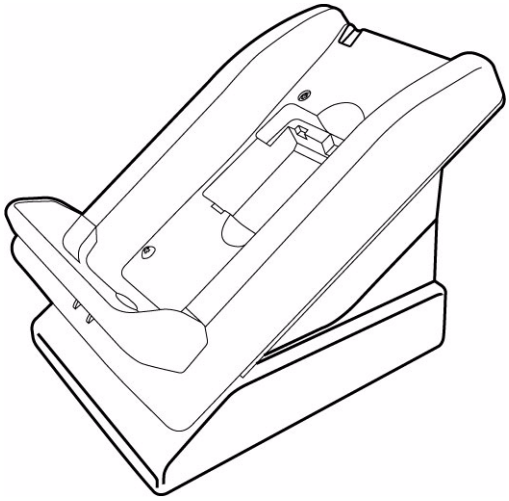

Figure 21 The V^{X}670 Full-Feature Base Station

For more information on charging the spare battery on the full-feature Base Station and connecting external dongles to the USB ports, see Charging the Spare Battery on the Base Station and Attaching the USB Dongles to the Base Station.

Powering Up the Base Station

Use the procedure in this section to connect the Vˣ670 Base Station to a power source.

1 Insert the round barrel connector of the power pack into the power port at the back of the Base Station.

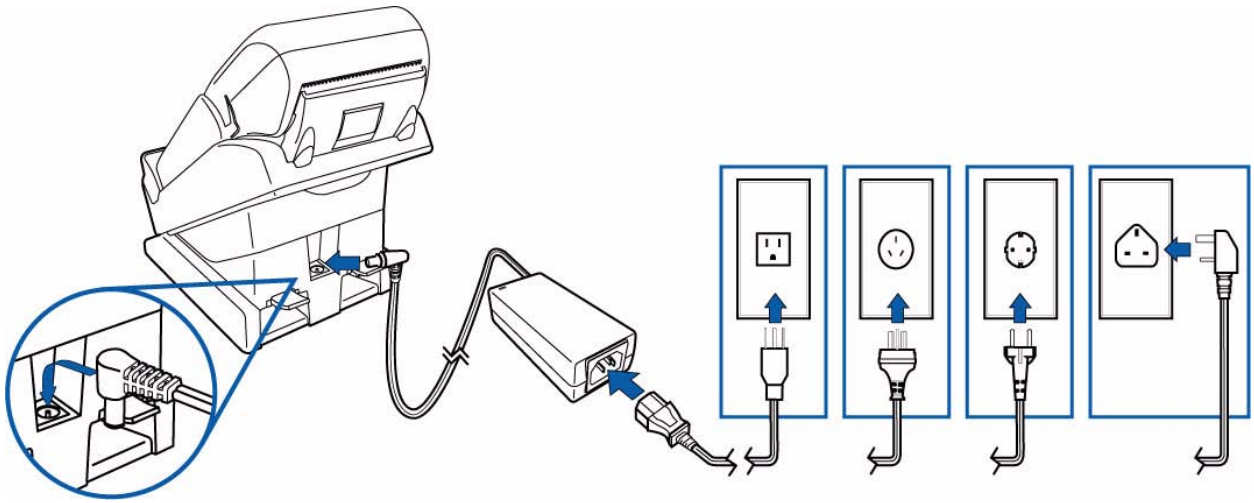

Figure 22 Connecting the Base Station to a Power Source

2 Insert the AC power cord into the power pack.

3 Plug the AC power cord into a wall outlet or power surge protector.

4 Confirm that the Base Station is powered up as indicated by the solid green LED.

Placing the Terminal Onto the Base Station

The V^{X}670 terminal can be placed on the Base Station when not in use or to charge the battery. External peripherals can also be attached to the terminal via USB dongles while it is on the Base Station (see Attaching the USB Dongles to the Base Station).

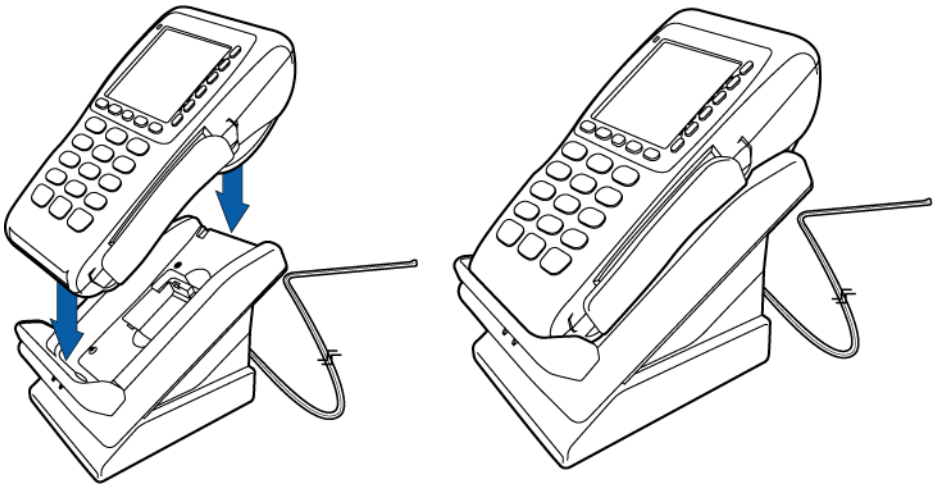

Figure 23 Placing the V^{X}670 onto the Base Station

NOTE

The full-feature Base Station can also charge a spare battery while it charges the battery attached to the terminal (see Charging the Spare Battery on the Base Station).

To protect against possible damage caused by lightning strikes and electrical surges, consider installing a power surge protector.

WARNING

Do not plug the power pack into an outdoor outlet or operate the terminal outdoors.

Disconnecting the power during a transaction may cause transaction data files not yet stored in terminal memory to be lost.

Attaching the USB Dongles to the Base Station

While the V^{X}670 terminal is resting on the Base Station, you can drive external peripherals through the use of USB dongles. Only one Modem Dongle and one Serial Dongle can be connected to the Base Station. A second Modem Dongle or a second Serial Dongle will be ignored by the terminal.

NOTE

The full-feature Base Station has USB ports for two external dongles. The standard Base Station does not have USB ports.

1 Insert the USB dongle into the USB port located at the back of the Base Station.

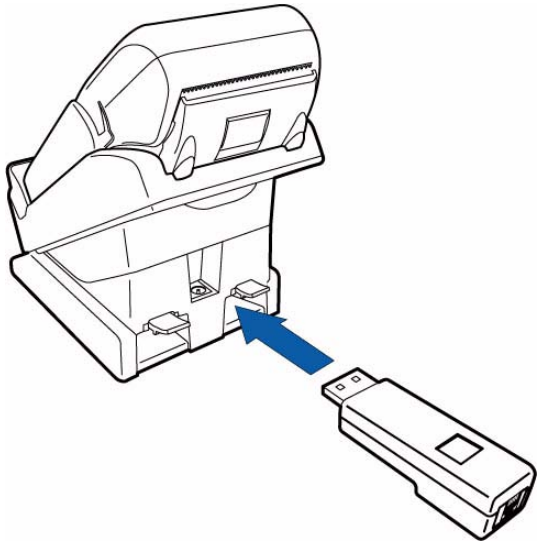

Figure 24 Inserting External Dongle Into USB Port

2 After inserting the external dongle into the USB port, place the V^{X}670 terminal onto the Base Station (see Powering Up the Base Station).

3 Connect the peripheral to the external dongle.

Charging the Spare Battery on the Base Station

The full-feature Base Station can charge the V^{X}670 terminal while charging an extra battery pack.

1 Connect the Base Station to a power source (see Powering Up the Base Station)

2 Place the spare battery pack onto the Base Station as shown in Figure 25.

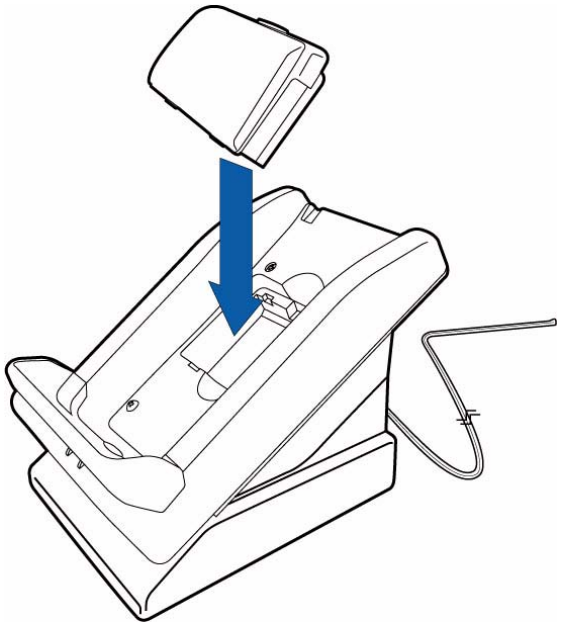

Figure 25 Putting Spare Battery Pack Into the Base Station

3 Place the VX670 terminal onto the Base Station to charge both the spare and installed battery packs at the same time.

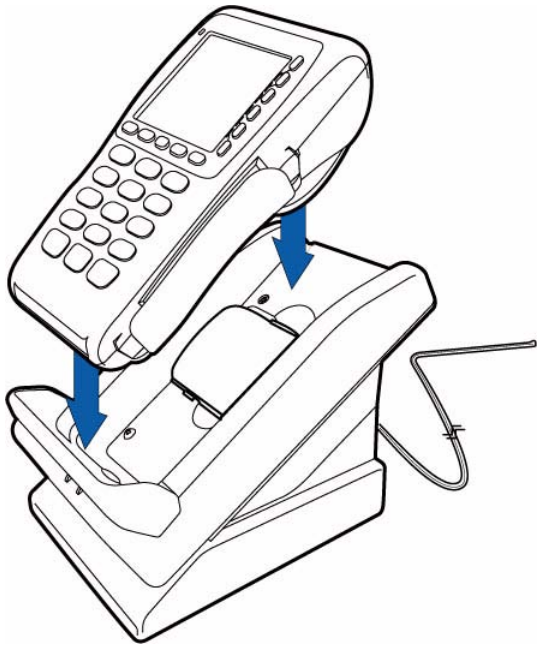

Figure 26 Charging the Spare and Installed Battery Simultaneously

Conducting Wireless Transactions

To conduct a wireless transaction:

- Ensure the terminal is in an optimal position for transmitting.
- Follow the on-screen instructions provided with your application.

Conducting Smart Card Transactions

The smart card transaction procedure may vary from one application to another. Verify the procedure with your application provider before performing a smart card transaction.

To Conduct a Smart Card Transaction

1 Position a smart card with the contacts facing upward (see Figure 27).

2 Insert the smart card into the smart card reader slot in a smooth, continuous motion until it seats firmly.

3 Remove the card only when the application indicates the transaction is complete.

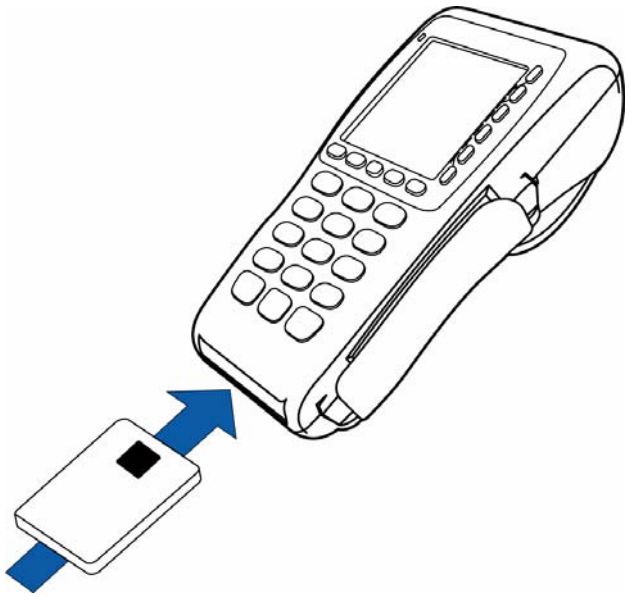

Figure 27 Inserting a Smart Card

CAUTION

Leave the smart card in the card reader until the transaction is complete. Premature card removal will invalidate the transaction.

Using the Magnetic Card Reader

The Vx670 terminal supports credit/debit card transactions.

To Conduct a Credit/ Debit Card Transaction

1 Position a magnetic card with the stripe in the card reader and facing inward, toward the keypad.

2 To ensure a proper read of the magnetic swipe card, the user should insert the magnetic card from the top of the unit, as shown in Figure 28.

3 Swipe the card through the magnetic card reader.

Figure 28 Using the Magnetic Card Reader

Specifications

This chapter discusses power requirements, dimensions, and other specifications of the V^{X}670 terminal.

Power

V^{X}670 terminal: 12V DC 2.0 A

DC Power Pack

UL, ITE listed, Class 2 power supply:

a Input rated: 100 - 240V AC, 50/60 Hz

b Output rated: 12V DC 2.0 A

Barrel connector polarity:

Temperature

- Operating temperature: 0° to 40° C (32° to 104° F)
- Storage temperature: -30° to + 60° C (-22° to 140° F)
- Relative humidity: 5% to 90%; non-condensing

External Dimensions

For V^{X}670 Terminals:

- Length: 169 mm (6.7 in)
- Width: 81 mm (3.2 in)
- Depth: 60 mm (2.4 in)

CHAPTER 4

Maintenance

The V^{X}670 terminal and base stations have no user-maintainable parts.

Cleaning the Terminal

To clean the terminal and base station, use a clean cloth slightly dampened with water and a drop or two of mild soap. For stubborn stains, use alcohol or an alcohol-based cleaner.

CAUTION

Never use thinner, trichloroethylene, or ketone-based solvents – they may cause deterioration of plastic or rubber parts.

Do not spray cleaners or other solutions directly onto the keypad or terminal display.

Terminal Contacts

Gently swab the contacts with alcohol or contact cleaner to remove the dirt. It is important that the exposed contacts of the V^{X}670 battery stay clean and unbent.

CAUTION

Avoid touching the contacts of the V^{X}670 battery and the recessed area on the terminal. Finger oils tarnish contacts, causing bad connections. When operating on battery power and experiencing a high occurrence of bad or incomplete data transfers, clean the contacts.

Smart Card Reader

Do not attempt to clean the smart card reader. Doing so may void any warranty. For smart card reader service, contact your VeriFone distributor or service provider.

CHAPTER 5

VeriFone Service and Support

For V^x670 terminal problems, contact your local VeriFone representative or service provider.

For V^x670 product service and repair information:

- USA – VeriFone Service and Support Group, 1-800-VeriFone (837-4366), Monday - Friday, 8 A.M. - 8 P.M., Eastern time
- International – Contact your VeriFone representative

Returning a Terminal or Smart Battery for Service

Before returning a V^x670 terminal, smart battery, or base station to VeriFone, you must obtain an MRA number. The following procedure describes how to return one or more V^x670 terminals, smart batteries, or base stations for repair or replacement (U.S. customers only).

NOTE

Customers outside the United States are advised to contact their local VeriFone representative for assistance regarding service, return, or replacement of terminals or batteries.

To Return a Terminal for Service

1. Get the following information from the printed labels on the bottom of *each* V^x670 terminal, smart battery, or sled module to be returned:
   - Product ID, including the model and part number. For example, "V^x670" and "M267-XXX-XXX-xxx."
   - Serial number (S/N nnn-nnn-nnn)
2. Obtain the MRA number(s) by completing one of the following:
   a. Call VeriFone toll-free within the United States at 1-800-VeriFone and follow the automated menu options.
      - Select the MRA option from the automated message. The MRA department is open Monday to Friday, 8 A.M.–8 P.M., Eastern Time.
      - Give the MRA representative the information you gathered in Step 1. If the list of serial numbers is long, you can fax the list, along with the information gathered in Step 1, to the MRA department at 727-953-4172 (U.S.).
   b. Address a fax to "VeriFone MRA Dept." with the model and part number(s)
      - Include a telephone number where you can be reached and your fax number.

c Complete the Inquiry Contact Form at http://www.verifone.com/aboutus/contact/contact_form.cfm.

- Address the Subject box with to “VeriFone MRA Dept.”
- Reference the model and part number in the Note box.

NOTE

One MRA number must be issued for each V^{x}670 terminal you return to VeriFone, even if you are returning several of the same model.

3 Describe the problem(s).

4 Provide the shipping address where the repaired or replacement unit must be returned.

5 Keep a record of the following items:

- Assigned MRA number(s).
- VeriFone serial number assigned to the V^{x}670 terminal, smart battery, or base station you are returning for service or repair (terminal serial numbers are located on the bottom of the unit.
- Shipping documentation, such as air bill numbers used to trace the shipment.
- Model(s) returned (model numbers are located on the VeriFone label on the bottom of the V^{x}670 terminal).

Accessories and Documentation

VeriFone produces the following accessories and documentation for the V^{x}670 terminal. When ordering, please refer to the part number in the left column.

- VeriFone online store at www.store.verifone.com
- USA – VeriFone Customer Development Center, 800-VeriFone (837-4366), Monday - Friday, 7 A.M. - 8 P.M., Eastern time
- International – Contact your VeriFone representative

Power Pack

Contact your local VeriFone distributor to determine which power pack or power cord fits your needs.

CPS11224-3B-R	DC power pack (universal)
21973-01	AC power cord (US)

Thermal Printer Paper

CRM0047-20	Thermal paper in 20-roll bulk package

VeriFone Cleaning Kit

02746-01	Cleaning Kit

Spare Battery	24016-01-R	V^x670 spare battery
AVX Host Cable	24223-01-R	V^x670 AVX Host Cable
Modem Dongle	24123-01-R	V^x670 Modem Dongle
Serial Dongle	24122-01-R	V^x670 Serial Dongle
Telephone Line Cord	00124-17	2.1-meter (7-foot) telephone line cord, black, with modular RJ11-type connectors

Documentation

For V^x670 Terminals:

V^x670 Certifications and Regulations Sheet	VPN 24000
V^x670 Quick Installation Guide	VPN 24001
V^x670 Reference Manual	VPN 24004
V^x670 Base and Dongle Quick Installation Guide	VPN 24005
V^x670 Standard Base Quick Installation Guide	VPN 24006

Troubleshooting Guidelines

The troubleshooting guidelines provided in the following section are included to help you install and configure your V^x670 terminal successfully. Typical examples of malfunction you may encounter while operating your V^x670 terminal and steps you can take to resolve them are listed in this chapter.

If the problem persists even after performing the outlined guidelines or if the problem is not described below, contact your local VeriFone representative for assistance.

NOTE

The V^x670 terminal comes equipped with tamper-evident labels. The V^x670 unit contains no user serviceable parts. Do not, under any circumstance, attempt to disassemble the terminal. Perform only those adjustments or repairs specified in this guide. For all other services, contact your local VeriFone service provider. Service conducted by parties other than authorized VeriFone representatives may void any warranty.

CAUTION

Use only a VeriFone-supplied power pack. Using an incorrectly rated power supply may damage the terminal or cause it not to work as specified. Before troubleshooting, ensure that the power supply being used to power the terminal matches the requirements specified on the bottom of the terminal. (See Chapter 3, Specifications, for detailed power supply specifications.) Obtain the appropriately rated power supply before continuing with troubleshooting.

Terminal Does Not Start

- Ensure that the smart battery charge state is not below the critically low level.
- Recharge or replace the smart battery.
- Ensure that you pressed the green ENTER/ON key for approximately 4 seconds, until the unit lights up.

Terminal Display Does not Show Correct/Readable Info

- Recharge or replace the battery.
- Connect the V^x670 terminal into a known-good power supply (if you have one) to see if this clears the problem.
- If the problem persists, contact your local VeriFone representative for assistance.

Smart Battery Will Not Charge

The V^x670 smart battery must initially receive a full charge to ensure proper operation.

NOTE

- Allow the V^x670 terminal to remain connected to the power pack for 6 hours to ensure the battery receives a full charge.
- Lithium-ion batteries are not affected by shallow charging. Furthermore, when the terminal has no external power source or battery the coin cell battery provides power to the security circuit.
- Uninstalling the battery and unplugging the terminal power pack reduce the life of the coin cell battery, which does not recharge and must be replaced if drained.
- Conserve battery power by turning the V^x670 terminal off when not in use. If the terminal will not be used for an extended period of time, keep the Lithium-ion battery inserted in the terminal, and power up the terminal periodically to check the battery charge. Do not let the battery charge fall below 10% for extended periods of time as this may permanently diminish the battery capacity. Recharge the battery by attaching the power cord to the terminal and plugging the power pack into a wall outlet.
- The V^x670 terminal automatically shuts off when the smart battery reaches the *critically low* charge state. If this occurs, the smart battery must recharge a minimum of 1/2 hour before it can power the terminal. *It may take several recharge attempts to reset the safety circuit* when charging a smart battery that has been discharged below this critical state.

Spare Battery in Base Station Will Not Charge

When the spare battery is installed in the base for charging, the Base LED will flash amber if the battery is charging, or stay solid green if the battery is fully charged. If the battery is not charged and the LED does not flash amber, check the contacts on the battery and in the terminal base to make sure they are clean. Also, try charging a known good battery to see if the problem is with the base or with the battery. If the problem persists, contact your local VeriFone representative.

Blank Display

When the V^x670 terminal display screen does not show correct or clearly readable information:

- Check terminal power connection.
- Remove and reapply power to the terminal.
- If the problem persists, contact your local VeriFone service provider.

Terminal Does Not Dial Out

If the terminal does not dial out:

- Check the telephone line connections.
- Check that the telephone line is working by plugging it into a working telephone and listening for a dial tone.

- Replace the telephone cable that connects the terminal with a cable you know is working correctly.
- If the problem persists, contact your local VeriFone service provider.

Printer Does Not Print

If the printer does not work properly:

- Make sure the battery is properly installed in the terminal. The printer will not print if there is no battery in the terminal.
- Check battery status or terminal power connection. The printer will not print if there is an insufficient charge remaining in the battery to complete the print operation.
- Check if the printer is out of paper (slow red blinking light) and that the roll is properly installed. Open the paper roll cover and install a new roll of printer paper or ensure that the roll is feeding correctly. A solid red indicator light indicates a printer error.
- Verify that the printer door is properly latched.
- If the problem persists, contact your VeriFone distributor or service provider.

Printer Paper Jam

If paper jams inside the printer:

- Press the button at the bottom of the terminal to unlatch the paper roll cover, then open the cover.
- Remove the damaged paper from the paper roll and clear the feed mechanism.
- Install a roll of printer paper, as described in Installing the Paper Roll.
- If the problem persists, it may be due to poor paper quality. Install a new roll of higher-quality paper.

WARNING

Poor-quality paper may jam the printer. To order high-quality VeriFone paper, refer to Accessories and Documentation.

Keypad Does Not Respond

If the keypad does not respond properly:

- Check the terminal display. If it displays the wrong character or nothing at all when you press a key, follow the steps outlined in Transactions Fail To Process.
- If pressing a function key does not perform the expected action, refer to the user documentation for that application to ensure you are entering data correctly.
- If the problem persists, contact your local VeriFone representative.

Transactions Fail To Process

There are several reasons why the terminal may not be processing transactions. Use the following steps to troubleshoot failures.

Check the Magnetic Card Reader

- Perform a test transaction using one or more different magnetic stripe cards to ensure the problem is not a defective card.
- Ensure that you are swiping cards properly. With the V^{X}670 card reader, the black magnetic stripe on the card should face down and inward, toward the keypad and must be inserted from the top of the terminal (see Figure 28).
- Process a transaction manually, using the keypad instead of the card reader. If the manual transaction works, the problem may be a defective card reader.
- Contact your VeriFone distributor or service provider.
- If the manual transaction does not work, proceed to Check the Telephone Line.

Check the Smart Card Reader

- Perform a test transaction using several different smart cards to ensure the problem is not a defective card.
- Ensure that the card is inserted correctly and that the card is not removed prematurely.
- Ensure the MSAM cards are properly inserted in the cardholders and that the cardholders are properly secured (see Installing/Replacing MSAM Cards).
- Contact your VeriFone distributor or service provider.
- If the manual transaction does not process, proceed to Check the Telephone Line.

Check the Telephone Line

- Disconnect the telephone line from the V^{X}670 terminal and connect it to a working telephone to check for a dial tone. If there is no dial tone, replace the telephone cable.
- If the problem appears to be with the telephone line, check with the party you are trying to call to see if their system is operational. If they are not experiencing difficulties with their line, contact the telephone company and have your line checked.
- If the telephone line works, contact your local VeriFone representative for assistance.

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VX670

Installation Guide

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